

# 8-Hour Ozone RACT State Implementation Plan

SIP Steering Committee  
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## 8-Hour Ozone Related SIPs

- **RACT SIP that meets RACT requirements under 8-hour ozone implementation rule due September 15, 2006**
- 8-hour Attainment Demonstration SIP due June 2007.
- Reasonable Further Progress SIP (showing 15% reductions from 2002 base year) – due with ozone attainment SIP.
- CAIR SIP setting up CAIR ozone season trading program due in March, 2007.

# Background - RACT

What is RACT (Reasonably Available Control Technology)?

- Defined as: lowest emission level a facility is capable of meeting through the application of control technology, considering both technical and economic feasibility.
- Required on existing major stationary emission sources in non-attainment areas.
- 1970s through 1990s EPA issued Control Technology Guidelines (CTGs) and Achievable Control Technologies (ACTs) to establish 1-hour standard RACT.

# 8-hour Ozone RACT SIP

RACT SIP will entail:

- Review of state 1-hour RACT.
- Identification of some source categories where new 8-hour RACT determinations may be needed.
- Certification for some categories that 1-hour standard RACT = 8-hour standard RACT
- Based on analysis of current technology, economics, and potential for emission reductions.

# 8-hour Ozone RACT SIP

EPA's Phase 2 Ozone Implementation Rule (11/95) established 8-hour RACT requirements:

- For some categories, fundamental control technologies required in 1970s-1990s are still applicable.
- Requiring incremental emission reductions from a 2<sup>nd</sup> round of controls on some categories would not be reasonable.
- Need a state-by-state review with regional EPA office of 1-hour RACT regulations and current sources within each state.

# 1-hour Ozone RACT - MA

Multiple VOC RACT source categories regulated in late 1980s and 1990s:

- Various Surface coating operations, degreasing, textile finishing, bakeries etc.

## 1995 NO<sub>x</sub> RACT categories

- Large boilers (> 100 MMBtu/hr)
- Medium boilers (50 – 100 MMBtu/hr)
- Small boilers (20 – 50 MMBtu/hr)
- Reciprocating engines
- Combustion turbines
- Municipal waste incinerators
- Glass furnaces

## 8-Hour Ozone RACT - OTC

- OTC analysis of control strategies includes review of RACT for various categories.
- OTC reviewing Institutional, Commercial, Industrial (ICI) Boiler category as a regional control measure.
- Category has potential for significant reductions in OTC region.

# OTC Draft Control Measure ICI Boilers

- OTC evaluating 2 control levels for large (>250 mmBtu/hr) and medium (100-250 mmBtu) ICI boilers (reductions are from uncontrolled levels):
  - 60% NO<sub>x</sub> reductions; 40% SO<sub>2</sub> reductions
  - 80% NO<sub>x</sub> reductions; 90% SO<sub>2</sub> reductions.
- OTC may evaluate reductions and cost effectiveness for 10-100 mmBtu/hr units or units with NO<sub>x</sub> emissions > 25 TPY



# 1-Hour Ozone RACT – MA Boilers

MA 1995 Boiler RACT determinations based on:

- Energy input capacity
- Fuel type
- Combustion approach (stoker-fired, face-fired, etc...)
- Heat release rate
- Potential Emissions

## **Examples:**

- Small Boilers  $\geq 20$ -50 mmBtu/hr - NO<sub>x</sub> RACT = annual tune-up.
- Tangential fired coal dry bottom boilers  $\geq 100$ mmBtu/hr - NO<sub>x</sub> RACT = 0.38 lbs NO<sub>x</sub>/mmBtu

# ICI Boilers – MA RACT Review

- Region 1 EPA has suggested MA consider tighter emission rates on ICI boilers.
- Must analyze and determine if RACT for this category should be tighter to meet 8-hour RACT SIP requirement.
- ICI Stakeholder Meeting -April 27, 2006
- MA boilers being reviewed - capacity  $\geq 100\text{mmBtu/hr}$ .
- MassDEP is not considering review of RACT for boilers  $< 100\text{mmBtu/hr}$  or  $< 50$  tons.

## NOx RACT for Boilers 100 - 250 mmBtu/hr

Type of Fuel	Type of Boiler	MA RACT Emission Limit (lbs/mmBtu)	2000 OTC Model Rule Limit (lbs/mmBtu)	MA 2002 Emissions (tpy)	% Reduction	Potential Emission Reduction in MA (tpy)
Gas Only		0.20	0.10	827.7	50.0%	413.9
Oil or Gas	heat release rate < = 70,000 Btu/hrs-ft <sup>3</sup>	0.30	Gas - 0.10	584.1	41.5%	242.4
Oil or Gas	heat release rate > 70,000 Btu/hrs-ft <sup>3</sup>	0.40	Oil - 0.20			
Coal	Dry Bottom, Tangential-Fired	0.38	0.20	249	52.0%	129.5
Coal	Dry Bottom, Face-Fired	0.45				
Other Solid Fuels	Stoker-Fired	0.33	0.20	0	0.0%	0.0

### EPA Region 1 Chart: MA NOx emission limits for boilers vs. OTC Model Rule

# ICI Boilers – MA RACT Review

- Sources asked to provide information on
  - Current control technologies at facility.
  - Technological feasibility of additional controls.
  - Estimated costs of additional controls.
  - Potential for use of CAIR allowances or ERCs as a compliance option.
- Asked for comments/feedback in writing by May 26, 2006

# OTC Control Measures -RACT SIP

- OTC June 6-7 meeting. Will make recommendations to states to adopt certain regional control measures. Some may be for RACT source categories.
- Recommendations will be a separate determination, independent of state RACT SIP requirement.
- OTC analysis of control measures will provide technical support for state RACT SIPs.
- Each state must still do a state-specific analysis to support its RACT SIP.

# Summary - 8-hour Ozone RACT SIP

- Analysis of all VOC and RACT categories.
- Certify 1-hour RACT = 8-hour RACT for some.
- May include new RACT determinations for some NO<sub>x</sub> categories – ICI boilers likely.
- September 2006 SIP commitment to adopt new RACT regulations as appropriate based on analyses.
- If new RACT determinations are made, state must require RACT implementation by May 2009.